

RK

The opinion in support of the decision being entered today was **not** written for publication
and is **not** binding precedent of the Board.

Paper No. 38

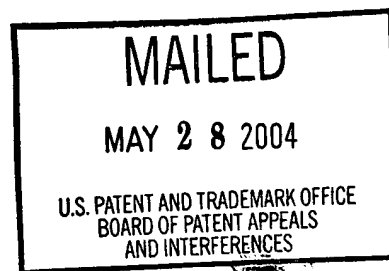
UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte PIERRE C. FAZAN, VIJU K. MATHEWS, and
NANSENG JENG

Appeal No. 2004-0582
Application No. 09/037,945

HEARD: MAY 4, 2004



Before KRASS, FLEMING, and DIXON, **Administrative Patent Judges**.
DIXON, **Administrative Patent Judge**.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1-4, 8,
9, 11, 12, 14, 16, and 17.

We REVERSE.

Appellants' invention relates to a streamlined field isolation process. An understanding of the invention can be derived from a reading of exemplary claim 1, which is reproduced below.

1. A process of forming an integrated circuit, comprising:
 - growing a silicon dioxide field isolation region on a semiconductor wafer without forming silicon nitride inclusions in said field isolation region exclusively by means of a hydrogen-free oxidant at a pressure less than about 30 atm; and
 - forming a gate oxide without a prior sacrificial oxidation.

The prior art of record relied upon by the examiner in rejecting the appealed claims is as follows:

Marshall et al. (Marshall), "Dry Pressure Local Oxidation of Silicon For IC Isolation," Reprinted from the **Journal of the Electrochemical Society**, Vol. 122, No. 19, pp. 1411-1412 (Oct. 1975)

Cattus et al. (Cattus) DD 266 885 A1 Apr. 12, 1989
(Referenced previously as German[y] '885 reference)

Claims 1, 2, 4¹, 14, and 17 stand rejected under 35 U.S.C. § 103 as being unpatentable over Cattus. Claims 3, 8, 9, 11, 12, and 16 stand rejected under 35 U.S.C. § 103 as being unpatentable over Cattus in view of Marshall.

¹ We note that claim 4 depends from claim 3 which is rejected using the additional teachings of Marshall.

Rather than reiterate the conflicting viewpoints advanced by the examiner and appellants regarding the above-noted rejections, we make reference to the examiner's answer (Paper No. 28, mailed Mar. 21, 2003) for the examiner's reasoning in support of the rejections, and to appellants' brief (Paper No. 19, filed Mar. 27, 2001), appellants' first supplemental brief (Paper No. 24, filed Jun. 27, 2002), second supplemental appellants' brief (Paper No. 26, filed Jan. 28, 2003) and reply brief (Paper No. 30, filed Sep. 29, 2003) for appellants' arguments thereagainst.

OPINION

In reaching our decision in this appeal, we have given careful consideration to appellants' specification and claims, to the applied prior art references, and to the respective positions articulated by appellants and the examiner. As a consequence of our review, we make the determinations which follow.

In rejecting claims under 35 U.S.C. § 103, the examiner bears the initial burden of presenting a ***prima facie*** case of obviousness. **See *In re Rijckaert***, 9 F.3d 1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993). A ***prima facie*** case of obviousness is established by presenting evidence that the reference teachings would appear to be sufficient for one of ordinary skill in the relevant art having the references before him to make the proposed combination or other modification. **See *In re Lintner***, 458 F.2d 1013, 1016, 173 USPQ 560, 562 (CCPA 1972). Furthermore, the conclusion that the

claimed subject matter is ***prima facie*** obvious must be supported by evidence, as shown by some objective teaching in the prior art or by knowledge generally available to one of ordinary skill in the art that would have led that individual to combine the relevant teachings of the references to arrive at the claimed invention. **See *In re Fine***, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). Rejections based on § 103 must rest on a factual basis with these facts being interpreted without hindsight reconstruction of the invention from the prior art. The examiner may not, because of doubt that the invention is patentable, resort to speculation, unfounded assumption or hindsight reconstruction to supply deficiencies in the factual basis for the rejection. **See *In re Warner***, 379 F.2d 1011, 1017, 154 USPQ 173, 177 (CCPA 1967), **cert. denied**, 389 U.S. 1057 (1968). Our reviewing court has repeatedly cautioned against employing hindsight by using the appellant's disclosure as a blueprint to reconstruct the claimed invention from the isolated teachings of the prior art. **See, e.g., *Grain Processing Corp. v. American Maize-Prods. Co.***, 840 F.2d 902, 907, 5 USPQ2d 1788, 1792 (Fed. Cir. 1988).

When determining obviousness, "the [E]xaminer can satisfy the burden of showing obviousness of the combination `only by showing some objective teaching in the prior art or individual to combine the relevant teachings of the references.'" **In re Lee**, 277 F.3d 1338, 1343, 61 USPQ2d 1430, 1434 (Fed. Cir. 2002), citing ***In re Fritch***,

972 F.2d 1260, 1265, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992). "Broad conclusory statements regarding the teaching of multiple references, standing alone, are not 'evidence.'" **In re Dembiczak**, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999). "Mere denials and conclusory statements, however, are not sufficient to establish a genuine issue of material fact." **Dembiczak**, 175 F.3d at 999, 50 USPQ2d at 1617, citing **McElmurry v. Arkansas Power & Light Co.**, 995 F.2d 1576, 1578, 27 USPQ2d 1129, 1131 (Fed. Cir. 1993) .

Further, as pointed out by our reviewing court, we must first determine the scope of the claim. "[T]he name of the game is the claim." **In re Hiniker Co.**, 150 F.3d 1362, 1369, 47 USPQ2d 1523, 1529 (Fed. Cir. 1998). Therefore, we look to the limitations set forth in independent claim 1. Appellants set forth "a process of forming an integrated by growing a silicon dioxide field isolation region on a semiconductor wafer without forming silicon nitride inclusions in said field isolation region exclusively by means of a hydrogen-free oxidant at a pressure less than about 30 atm; and forming a gate oxide without a prior sacrificial oxidation." (Emphasis added.)

The examiner maintains that it would have been within the scope of one of ordinary skill in the art to omit the first stage of oxidation, which is a wet process, in the process of Cattus and that the process would be useful to form an oxide isolation region although the process would be longer in duration. (See answer at page 4.) We

cannot agree with the examiner that it would have been obvious to simply omit the first wet step and continue with the remainder of the process. We find no convincing line of reasoning from the examiner why the omission of this step would have been as simple as the mere omission and a reduction of speed of the process. While Cattus teaches that there is an increase in the yield, there is also a formation of a narrow stripe of silicon nitride ("white ribbon" effect) which is then subsequently removed. Here, the claim specifically recites that "growing . . . without forming silicon nitride inclusions . . . exclusively by means of a hydrogen-free oxidant at a pressure less than about 30 atm; and forming a gate oxide without a prior sacrificial oxidation". Here, we find that we would have to resort to speculation in order to agree with the examiner's conclusory finding with respect to the deletion of the first step of the Cattus process.

While Cattus teaches that the wet process is an improvement over the known process which we assume would be a dry process, we find insufficient detail in Cattus concerning that prior art dry process such that the claimed invention would have been anticipated by the prior art dry process being improved upon by Cattus. Therefore, we would be required to speculate about the details of the process being improved upon by Cattus. This we cannot do. In order for us to sustain the Examiner's rejection under 35 U.S.C. § 103, we would need to resort to speculation or unfounded assumptions or rationales to supply deficiencies in the factual basis of the rejection before us. **In re**

Appeal No. 2004-0582
Application No. 09/037,945

Warner, 379 F.2d 1011, 1017, 154 USPQ 173, 178 (CCPA 1967), **cert. denied**, 389 U.S. 1057 (1968), **rehearing denied**, 390 U.S. 1000 (1968). Therefore, we cannot sustain the rejection of independent claims 1 and 14, and their dependent claims 2, 4, and 17.

Additionally, we do not find that Marshall remedies the deficiency in Cattus. We find that while Marshall teaches a dry process, the pressure is significantly higher than the recited 30 atmospheres. Again, we do not find that the examiner has established a ***prima facie*** case of obviousness of the claimed invention, nor do we find an adequate line of reasoning to support the examiner conclusion that it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of a wet process as taught by Cattus with the dry process of Marshall and optimize the conditions as suggested by the examiner at pages 4-5 of the answer. Therefore, we cannot sustain the rejection of independent claims 8, 11 and dependent claims 3, 9, 12, and 16.

Appeal No. 2004-0582
Application No. 09/037,945

CONCLUSION

To summarize, the decision of the examiner to reject claims 1-4, 8, 9, 11, 12, 14, 16 and 17 under 35 U.S.C. § 103 is reversed.

REVERSED



ERROL A. KRASS
Administrative Patent Judge

Mark L. B.

MICHAEL R. FLEMING
Administrative Patent Judge

Joseph L. Kifer

JOSEPH L. DIXON
Administrative Patent Judge

BOARD OF PATENT
APPEALS
AND
INTERFERENCES

JD/RWK

Appeal No. 2004-0582
Application No. 09/037,945

KNOBBE MARTENS OLSON & BEAR LLP
2040 MAIN STREET
FOURTEENTH FLOOR
IRVINE, CA 92614